

CLAIMS

Sub A1 1. Fluid processing apparatus comprising, a vessel containing a hydrocyclone and defining an inlet chamber, the vessel having a vessel inlet arranged to feed fluid into the inlet chamber, and the inlet chamber being arranged to receive fluid from the vessel inlet and to pass the fluid to an inlet of the hydrocyclone, the inlet chamber including coalescing means arranged to coalesce relatively small droplets contained in fluid received at the vessel inlet into larger droplets before passing the fluid to the hydrocyclone inlet, the coalescing means having a substantially predetermined external shape which defines at least one elongate liner hole for receiving a respective hydrocyclone liner and which permits removal of the hydrocyclone liner without removing the coalescing means.

2. Apparatus according to 1 wherein the coalescing means is mechanically supported by the vessel.

Sub A2 3. Apparatus according to claim 2 or claim 3, wherein the coalescing means is arranged to cause the fluid to pass through fibres of generally increasing respective cross-sectional areas as the fluid passes towards the hydrocyclone inlet.

4. Apparatus according to and preceding claim, wherein the coalescing means is arranged to cause the fluid to pass through fibres of predetermined varying wettability as the fluid passes towards the hydrocyclone inlet.

5. Apparatus according to any preceding claim, wherein the coalescing means is arranged to cause the fluid to pass through fibres and wherein the coalescing means is further arranged to cause the fluid to pass through regions in which the fibre density varies in a predetermined manner as the fluid passes towards the hydrocyclone inlet.

6. Apparatus according to any preceding claim, wherein the coalescing means, includes a region of generally parallel fibres arranged at least in use, to extend generally parallel to the direction of fluid flow.

7. Apparatus according to claim 6, wherein the parallel fibres are attached generally by one end only of the fibres.

8. Apparatus according to claim 6 wherein the fibres are attached at both ends.

9. Apparatus according to any preceding claim, wherein the inlet chamber includes an inlet arrangement which creates a plug flow regime at the inlet of the coalescing means.

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10. Apparatus according to any preceding claim, wherein the vessel is generally elongate and the hydrocyclone inlet is positioned generally at a first end of the vessel, the inlet chamber containing an inlet arrangement having an inlet baffle which divides the inlet chamber into an inner region which contains the hydrocyclone and an outer region adjacent the interior surface of the vessel wall, the vessel inlet being arranged to feed fluid into the outer region and the inlet baffle including at least one baffle aperture located generally at the second, distal end of the vessel and arranged to permit fluid flow from the outer region to the inner region.

11. Apparatus according to claim 10, wherein the inner region further contains the coalescing means.

12. Apparatus according to claim 10 or claim 11, wherein the vessel inlet is arranged to feed fluid into the outer region at a position between the two ends of the vessel.

13. Apparatus according to any of claims 10 to 12, wherein the outer region extends along a shorter length of the vessel than the inner region.

14. Apparatus according to any of claims 10 to 13, wherein the inlet baffle is generally cylindrical and the or each baffle aperture is arranged to cause a generally inwardly radial flow of fluid into the inner region.

15. Apparatus according to any of claims 10 to 14 when dependant from claim 5, wherein the parallel fibres extend in the inner region generally from the or each baffle aperture towards the first end of the vessel.
16. Apparatus according to any preceding claim, wherein the coalescing means includes a mass of integrally-formed coalescing media defining a plurality of elongate holes for receiving one or more respective hydrocyclone liner.
17. Apparatus according to any preceding claim, wherein the fluid is an oil/water emulsion.
18. Apparatus according to any preceding claim, wherein the overflow outlet of the hydrocyclone is closed.
19. Apparatus according to any preceding claim, wherein the overflow and underflow outlets of the hydrocyclone are coupled together.
20. Apparatus according to any preceding claim, wherein the vessel contains a plurality of hydrocyclones.

21. A method of manufacturing fluid processing apparatus having a vessel containing a plurality of hydrocyclones and defining an inlet chamber, the vessel having a vessel inlet arranged to feed fluid into the inlet chamber, and the inlet chamber being arranged to receive fluid from the vessel inlet and to pass the fluid to the respective inlets of the hydrocyclones, comprising the steps of inserting a mass of coalescing media into the inlet chamber, the media having a substantially predetermined external shape defining at least one elongate liner hole for receiving a respective hydrocyclone liners and being arranged to coalesce relatively small droplets contained in fluid received at the vessel inlet into larger droplets before passing the fluid to the respective hydrocyclone inlets and subsequently inserting at least one hydrocyclone liner into a respective liner hole.

22. A method according to claim 20 including the step of locating an inlet arrangement in the inlet chamber, the inlet arrangement having an inlet baffle which divides the inlet chamber into an inner region which contains the hydrocyclones and an outer region adjacent the interior surface of the vessel wall, the vessel inlet being arranged to feed fluid into the outer region and the inner region containing a mass of fibrous coalescing medium whose fibres are attached at one end and which at least in use, are arranged generally parallel to the flow direction of fluid in the inner region.

23. A method of manufacturing fluid processing apparatus having a vessel containing a plurality of hydrocyclones and defining an inlet chamber, the vessel having a vessel inlet arranged to feed fluid into the inlet chamber, and the inlet chamber being arranged to receive fluid from the vessel inlet and to pass the fluid to the respective inlets of the hydrocyclones, the inlet chamber including coalescing means arranged to coalesce relatively small droplets contained in fluid received at the vessel inlet into larger droplets before passing the fluid to the respective hydrocyclone inlets, comprising the step of locating an inlet arrangement in the inlet chamber, the inlet arrangement having an inlet baffle which divides the inlet chamber into an inner region which contains the hydrocyclones and an outer region adjacent the interior surface of the vessel wall, the vessel inlet being arranged to feed fluid into the outer region and the inner region containing a mass of fibrous coalescing medium whose fibres are attached at one end and which at least in use, are arranged generally parallel to the flow direction of fluid in the inner region.

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